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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MCHEMRY, KEVIN L

ART UNIT PAPER NUMBER

1725

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/869,302

Applicant(s)

ROUX, CLAUDE

Examiner

Kevin L McHenry

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/5/01.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Drawings

1. Figure 18 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 30 and 36. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 43, 71, and 73. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claim 14 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 14 depends upon claim 8 and recites the same limitations set forth in claim 8.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 1 uses the language "...in gases emitted in particular by internal combustion engines..." in lines 1-2. This language is indefinite because it is unclear if this heat cell is used for an internal combustion engine or not. For examination purposes the examiner interpreted this language to mean "...in gases emitted by internal combustion engines..."

8. Regarding claim 5, the phrase "for example" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d). For examination purposes the examiner interpreted claim 5 to read "...numerous excrescences of diamond point or similar type..."

9. Claim 6 recites the limitation "the pyrolitic heat cell" in line 1 of claim 6. There is insufficient antecedent basis for this limitation in the claim. For examination purposes the examiner interpreted this language to mean "a pyrolitic heat cell".

10. Claims 8 and 14-16 use the language "...preferably arranged ahead of the pyrolysis spheres." This language renders the scope of the claim indefinite because it is unclear if the rings are arranged ahead of the spheres or not. It is also unclear what "ahead of the

pyrolysis spheres" means; it is unclear what direction this is in. For examination purposes the examiner interpreted this language to mean "...arranged ahead of the pyrolysis spheres along a direction of gas flow."

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

12. Claims 1, 2, 7, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Erven et al. (U.S.P. 6,143,254).

Erven et al. teach a pyrolytic emissions reduction system for internal combustion engines that has a large exchange area in the hot zone because it includes lava rocks disposed within chambers bounded by screens. Erven et al. teach that the rocks have porous surfaces so that there is sufficient contact area and so that the flow of gas

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through the rock bed is not restricted. (See U.S.P. 6,143,254; Figures 1, 2B, 5; column 1, lines 14-18; column 2, lines 43-65; column 4, lines 2-10; column 5, lines 24-36; column 6, lines 16-22, 56-61). Because of the porous, rough surface of the lava rock (as shown in Figure 5), the rock would have indentations and areas that jut or point out.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 1, 2, 7, 8, 10, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bayliss et al. (U.S.P. 5,440,876) in view of Erven et al. (U.S.P. 6,143,254).

Bayliss et al. teach a pyrolitic heat cell that includes stainless steel mesh end rings that act as a nets to contain a bed of pellets between the rings at the ends of the cell. At least one of the rings is arranged ahead of the pellets in relation to the flow of gas through the bed of pellets. (See U.S.P. 5,440,876; Figure 1; column 1, lines 4-7; column 2, lines 64-68; column 3, lines 1-14).

Bayliss et al. do not teach the use of spheres with excrescences.

Erven et al. teach a pyrolitic emissions reduction system for internal combustion engines that has a large exchange area in the hot zone because it includes lava rocks disposed within chambers bounded by screens. Erven et al. teach that the rocks have

porous surfaces so that there is sufficient contact area and so that the flow of gas through the rock bed is not restricted. (See U.S.P. 6,143,254; Figures 1, 2B, 5; column 1, lines 14-18; column 2, lines 43-65; column 4, lines 2-10; column 5, lines 24-36; column 6, lines 16-22, 56-61). Because of the porous, rough surface of the lava rock (as shown in Figure 5), the rock would have indentations and areas that jut or point out.

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the invention of Bayliss et al. by the teachings of Erven et al. One would have been motivated to do so in order to use porous rock so a sufficient contact area was provided and so that the flow of gas through a bed of pellets or rocks is not restricted, as taught by Erven et al.

15. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Whittenberger (U.S.P. 4,928,485).

Whittenberger teaches a catalytic converter that includes an insulated body and electric heaters composed of wire or rods spirally wound to a central core member. Outer portions of the heaters are connected to the body by weld tabs 19. Figure 1 shows at least 2 weld tabs spaced apart within the chamber of the converter. (See U.S.P. 4,928,485; Figures 1 and 5; column 4, lines 27-30, 56-68; column 5, lines 1-14).

Although Whittenberger does not specifically teach that the heaters are stacked, it would have been obvious to one of ordinary skill in the art that the heaters would be mounted one ahead of the other in a direction of gas flow. Such a configuration is the same as a stacked configuration because the heaters would vertically spaced if the

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converter were held vertically. Such heaters would also be flat in order to allow the wires or rods taught by Whittenberger to be welded to the housing.

Allowable Subject Matter

16. Claims 3-5, 9, 11-13, 15, and 16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

17. The following is a statement of reasons for the indication of allowable subject matter: the instant application is deemed to be a nonobvious improvement over the invention of Erven et al. The improvements comprise spheres with excrescences machined from limestone rock, spheres with excrescences molded from limestone mineral powder, and spheres with excrescences that are stamped as halves from a sheet of metal 0.4 mm thick and then welded together

Conclusion

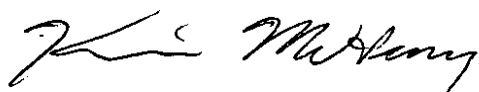
18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Holler, Jr. (U.S.P. 3,918,915), Schmidt (U.S.P. 4,027,476), Tukao et al. (U.S.P. 4,404,007), Buchholz et al. (U.S.P. 5,275,790), Ketcham et al. (U.S.P. 5,519,191), Okajima et al. (U.S.P. 4,695,301), Odell (U.S.P. 2,631,921), Harle (U.S.P. 5,211,918), Kojima et al. (U.S.P. 5,811,064), and Crosby et al. (U.S.P. 3,598,543) are cited of interest for illustrating the state of the art in catalytic converters, pyrolytic cells, heating units, and catalytic pellets.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin L McHenry whose telephone number is (571) 272-1181. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin McHenry

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